

REMARKS

This Amendment and Response to Non-Final Office Action is being submitted in response to the non-final Office Action mailed January 12, 2006. Claims 1-30 are pending in the Application. Claims 1, 7, 13, 19, and 25 are the independent claims.

Claims 1-30 stand rejected under 35 U.S.C. 102(b) as being anticipated by Bracho et al. (U.S. Patent No. 5,974,417).

In response to this rejection, the Claims have been amended herein, without prejudice or disclaimer to continued examination on the merits. These amendments are fully supported in the Specification, Drawings, and Claims of the Application and no new matter has been added. Based upon the amendments, reconsideration of the Application is respectfully requested in view of the following remarks.

Rejection of Claims 1-30 Under 35 U.S.C. 102(b) –Bracho et al:

Claims 1-30 stand rejected under 35 U.S.C. 102(b) as being anticipated by Bracho et al. (U.S. Patent No. 5,974,417).

Bracho et al. disclose a method and apparatus for publishing and receiving events to a network (Abstract). Specifically, *the Bracho et al. disclosure is directed to connecting a legacy data base to an information publishing system* (Col. 1, lines 23-25). The system receives a published event from a publisher and routes the event to all appropriate subscribers. Each subscriber is guaranteed to receive all events published on the system if, and only if, they match the subscription criteria specified by the subscriber. A legacy data base can be added to the network by way of a data base connector, which can be a publisher, a subscriber, or both (Abstract).

Although Bracho et al. analogously refer to “publishing” as broadcasting an event, like a radio station broadcast, wherein all parties involved must agree in advance on a set of possible frequencies (Col. 4, lines 56-63), Bracho et al. do not disclose the content of a broadcast message, the use of a special IP address that is reserved for a broadcast, or the concurrent routing of a broadcast message packet. Bracho et al. simply disclose a method of connecting a data base to a publisher/subscriber network, so that that the data base can publish events to the network (Col. 2, lines 60-62).

The present invention, however, is directed to a reliable communication system wherein a communication facilitation mechanism broadcasts (rather than unicasts) an event to a namespace. ***This enables publishers to broadcast, rather than unicast, events to multiple subscribers concurrently.*** This capability makes it possible for a publisher to notify all of the modules in a system of a particular event in a very short time. For events such as a failure notification, for which short response time is important, this capability leads to greatly improved response time and performance.

To overcome the problem of sending an event to one subscriber at a time, there is provided a ***capability to broadcast rather than unicast an event to a namespace***. In broadcast mode, a communication coordinator does not send one publication message packet at a time to each subscriber. Instead, ***the communication coordinator sends a single publication message packet concurrently to each and every other communication coordinator***. It is then up to each receiving communication coordinator to determine whether there are subscribers for the namespace, and to deliver the event message to those subscribers. By broadcasting an event in this manner, event messages can reach a large number of subscribers more quickly.

To illustrate how broadcast mode is implemented in accordance with one embodiment of the present invention, suppose that application component wishes to broadcast an event to namespace "/LM/1/monitor/event/LOS". To do so, the publishing component sends a publication message to communication coordinator. In this message, ***the publishing component provides: (1) the namespace to which it is publishing; (2) the content of the message; and (3) an indication that the event is to be broadcasted.***

In response to the publication message, the communication coordinator creates a broadcast message packet. Within this packet, the communication coordinator stores: (1) the namespace to which publication is being made; (2) the message content received from the publishing component; and (3) an indication that the message is a broadcast message. ***Thereafter, the communication coordinator addresses the message packet to a special IP address that is reserved for broadcasts, and sends the packet into the communication network. Based upon the special IP address, the broadcast message packet is concurrently routed by the network to every other communication coordinator of every other module in the switch.***

Upon receiving the broadcast message packet, each communication coordinator performs the following operations. For the sake of simplicity, only the operations performed by the communication coordinator of line module will be described. However, it should be noted that the following description applies to all of the communication coordinators.

Based upon the broadcast indication included in the broadcast message packet, the communication coordinator 204(2) determines that the packet contains a broadcast message. In response to this determination, the communication coordinator 204(2) extracts the namespace from the message packet. Using this namespace, the communication coordinator 204(2) searches through the Local Subscribers Table 404 (Fig. 4B) of line module 102(2) for all matching namespaces. In doing so, the communication coordinator 204(2) may encounter not just specific namespaces in the table 404 but also namespace expressions, such as that found in entry 412. If a namespace expression is encountered, then in one embodiment the communication coordinator 204(2) performs pattern matching to determine whether the namespace expression matches the namespace extracted from the packet. In the present example, the namespace expression in entry 412 does match the extracted namespace. Thus, a matching entry is found.

For each matching entry in the Local Subscribers Table 404, the communication coordinator 204(2) creates a publication message to be forwarded to a corresponding subscribing component. In one embodiment, the communication coordinator 204(2) inserts into this message: (1) the namespace to which publication is being made; and (2) the message content provided by the publishing component 202(1)(1). Once the publication message is created, the communication coordinator 204(2) accesses the subscribing component 202(2)(n) using the subscriber reference S2 stored in the "Reference to Subscriber" column of the matching entry, and forwards the publication message to the subscribing component 202(2)(n). The broadcast message is thus

delivered to the subscribing component 202(2)(n). By broadcasting a message to all communication coordinators 204, and by having each communication coordinator 204 deliver the message to the appropriate local subscribers in this manner, the CFM makes it possible to deliver a message to a large number of subscribers in a very short amount of time.

Claim 1 has been amended to recite:

In a communication system comprising a plurality of modules, a method implemented by a communication coordinator on a particular module for selectively delivering a broadcast message, comprising:

receiving a broadcast message, said broadcast message being broadcasted by one of said plurality of modules to said plurality of modules including said particular module; ***wherein said broadcast message comprises a namespace to which the broadcast is being made, a content received from a broadcasting component on one of said plurality of modules, and an indication that the message is a broadcast message; and wherein the broadcast message was addressed to an internet protocol address specifically reserved for broadcast messages;***

determining whether there are any recipient components local to said particular module that should receive said broadcast message; and

in response to a determination that there is one or more recipient components for said broadcast message, delivering said broadcast message to said one or more recipient components.

Claim 7 has been amended to recite:

In a communication system comprising a plurality of modules, an apparatus residing on a particular module for selectively delivering a broadcast message, said apparatus comprising:

a mechanism for receiving a broadcast message, said broadcast message being broadcasted by one of said plurality of modules to said plurality of modules including said particular module; ***wherein said broadcast message comprises a namespace to which the broadcast is being made, a content received from a broadcasting component on one of said plurality of modules, and an indication that the message is a broadcast message; and wherein the broadcast message was addressed***

to an internet protocol address specifically reserved for broadcast messages;

a mechanism for determining whether there are any recipient components local to said particular module that should receive said broadcast message; and

a mechanism for delivering, in response to a determination that there is one or more recipient components for said broadcast message, said broadcast message to said one or more recipient components.

Claim 13 has been amended to recite:

A computer readable medium comprising instructions which, when executed by one or more processors, causes the one or more processors to selectively deliver a broadcast message, said computer readable medium comprising:

instructions for causing one or more processors on a particular module to receive a broadcast message, said broadcast message being broadcasted by one of a plurality of modules in a communication system to said plurality of modules including said particular module; ***wherein said broadcast message comprises a namespace to which the broadcast is being made, a content received from a broadcasting component on one of said plurality of modules, and an indication that the message is a broadcast message; and wherein the broadcast message was addressed to an internet protocol address specifically reserved for broadcast messages;***

instructions for causing one or more processors to determine whether there are any recipient components local to said particular module that should receive said broadcast message; and

instructions for causing one or more processors to deliver, in response to a determination that there is one or more recipient components for said broadcast message, said broadcast message to said one or more recipient components.

Claim 19 has been amended to recite:

In a communication system comprising a plurality of modules, a method for selectively delivering a broadcast message, comprising:

broadcasting, by a first module in said communication system, a broadcast message to a plurality of other modules in said communication system; ***wherein said broadcast message comprises a namespace to***

which the broadcast is being made, a content received from a broadcasting component on one of said plurality of modules, and an indication that the message is a broadcast message; and wherein the broadcast message was addressed to an internet protocol address specifically reserved for broadcast messages;

receiving, by each of said other modules, said broadcast message;
and

processing, by each of said other modules, said broadcast message
by:

determining whether there are any local components that should receive said broadcast message; and
in response to a determination that there is one or more local components that should receive said broadcast message, delivering said broadcast message to said one or more local components.

Claim 25 has been amended to recite:

A communication system, comprising:

a first module; and

a plurality of other modules;

wherein said first module broadcasts a broadcast message to said plurality of other modules; *wherein said broadcast message comprises a namespace to which the broadcast is being made, a content received from a broadcasting component on one of said plurality of modules, and an indication that the message is a broadcast message; and wherein the broadcast message was addressed to an internet protocol address specifically reserved for broadcast messages;*

wherein each of said plurality of other modules receives said broadcast message; and

wherein each of said other modules processes said broadcast message by:

determining whether there are any local components that should receive said broadcast message; and

in response to a determination that there is one or more local components that should receive said broadcast message, delivering said broadcast message to said one or more local components.

- Claims 2-6 are dependent claims either directly or ultimately dependent on Claim 1. Claims 8-12 are dependent claims either directly or ultimately dependent on Claim 7. Claims 14-18 are dependent claims either directly or ultimately dependent on Claim 13.

Claims 20-24 are dependent claims either directly or ultimately dependent on Claim 19. Claims 26-30 are dependent claims either directly or ultimately dependent on Claim 25. Based on the same unique and novel features of the present invention as described above, namely that 1, 7, 13, 19, and 25 have unique and patentable novel features, it is respectfully asserted that these dependent claims are now in condition for allowance.

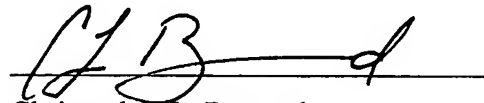
Therefore, Applicant submits that the rejection of 1-30 stand rejected under 35 U.S.C. 102(b) as being anticipated by Bracho et al. has now been overcome and respectfully requests that this rejection be withdrawn.

CONCLUSION

Applicants would like to thank Examiner for the attention and consideration accorded the present Application. Should Examiner determine that any further action is necessary to place the Application in condition for allowance, Examiner is encouraged to contact undersigned Counsel at the telephone number, facsimile number, address, or email address provided below. It is not believed that any fees for additional claims, extensions of time, or the like are required beyond those that may otherwise be indicated in the documents accompanying this paper. However, if such additional fees are required, Examiner is encouraged to notify undersigned Counsel at Examiner's earliest convenience.

Respectfully submitted,

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